

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph on page 1, lines 21-27 with the following amended paragraph:

An alternative is to modulate a laser using an RF or microwave modulator. However, for modulation at high frequencies it is desirable to use a frequency synthesizer that is both NIST traceable (i.e., calibrated in a manner traceable to a National Institute of Standards and Technology reference source) and stable with respect to both frequency and amplitude. Such synthesizers can be expensive for frequencies above a few tens of gigahertz. Furthermore, although the modulation frequency can be calibrated using this technique, it is difficult to calibrate the amplitude of the modulated signal.

Please replace the paragraph starting on page 10, line 28 and ending on page 11, line 13 with the following amended paragraph:

The frequency of the oscillator **222** and the speed of the local detector **221**, DDS **223**, PLL **224** and integrator **225** determine the frequency difference range that is measurable by the detector **220**. Any sufficiently frequency stable signal source that produces a reference frequency in the desired range may be used as the oscillator **222**. By way of example, the oscillator **222** may be a generic 160 MHz crystal oscillator. Such an oscillator **222** may in turn be phase locked to another reference signal such as an industry standard 10 MHz clock. It is desirable, for many applications, to use an oscillator **222** that is traceable to a National Institute of Standards and Technology (NIST) frequency reference. By using a NIST traceable reference oscillator, the frequency calibration of the frequency offset of the lasers **201**, **202** is NIST traceable. The DDS **223** creates a subset of frequencies based on the signal from the oscillator **222**. This subset is compared to the frequency of the signal from the local detector in the PLL **224**. A model AD9851 from Analog Devices, Inc. of Norwood, Massachusetts may be used as the DDS **223** and a model PE 3240 from Peregrine Systems of San Diego, California may be used as the PLL **224**. To extend the frequency range of the detector to multiples of the reference frequency from the oscillator **222** it is desirable to couple a pre-scaler **226** between the local detector **221** and the PLL **224**. An example of a suitable pre-scaler is a model HMC-363 from Hittite Microwave Corporation of Chelmsford, Massachusetts.